

REMARKS

Claims 19-35 are presently pending in the application.

Original claims 1, 6 and parts of 2 and 5 have been rewritten as new independent claim 19, and this claim has been restructured to better define the claimed invention. New claim 19 is supported at least by original claims 1, 2, 5 and 6, and in the specification, for example, in the Abstract and paragraphs [0019] – [0023] and [0042] – [0048] of the U.S. Patent Application Publication No. 2004/0124567, and in Figs. 5 and 6 of the drawings. New claims 20 through 35 correspond essentially to original claims 4, 5 (part), 7-18, 2 (part), and 3, respectively. Accordingly, no new matter has been added, and entry of the amendments is respectfully requested.

The Examiner has rejected claims 1-6 and 14 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,780,129 of Ohta. The Examiner contends that Ohta shows a process for producing a connecting element for sealing and non-releasable connection to a hollow body of thermoplastic material, including a step of press shaping a laminate of thermoplastic material carried out between two mating platens. The Examiner further contends that the laminate of Ohta may be formed by co-extrusion of a multi-layer perform, that the hollow body may be formed by a blow molding operation, and that the connecting element is formed by press shaping a multi-layer product or excess extrudate from the blow molding of the hollow body (see Fig. 6; col. 10, lines 55-67 and col. 11, lines 1-12). The Examiner also contends that Ohta shows other features of claims 2-5.

This rejection is respectfully but strenuously traversed for the reasons set forth in detail below.

As shown in Fig. 1, Ohta discloses a multi-layer blow-molded article, such as a bumper for a car. This blow-molded article has several connecting flanges (clamping portions 3, 4) which are shaped during blow molding. Thus, as shown in Figs. 3-6 of Ohta, these connecting flanges are shaped during blow molding within the mold, as the mold halves 5a and 5b are moved together and first and second slide portions 7, 9 exert a clamping or pressing force on the article within the mold, such that the wall portions 3, 4 of the article are partly welded together.

Presumably, this is the press shaping step being referred to by the Examiner. However, as seen from Figs. 3-6 of Ohta, the walls 3, 4 of the article are partly pressed and bonded together by the sliding elements during the forming of the blow-molded hollow article in the same mold cavity. That is, the connecting flanges of Ohta are formed integrally with the hollow body in one blow molding step utilizing sliding elements within the cavity.

In contrast, according to the presently claimed method, a multi-layer hollow body is formed by a blow molding operation (step b), a connecting element is separately formed in a press shaping step between two mating patens (step c) from a laminate of thermoplastic material provided (in step a) from a plate-shaped, multi-layer, semi-finished product or from excess extrudate from a multi-layer perform in a co-extrusion blow molding process, and finally, the connecting element is non-releasably sealed and connected to the hollow body (step d).

Ohta does not teach or suggest the separate formation of a connecting element and subsequently sealing and connecting the connecting element to the hollow body. To the extent that flanges or clamping portions 3, 4 of Ohta could be considered connecting elements, they are not separately formed connecting elements, and they are not subsequently sealed and connected to the hollow body. Instead, they are clearly part of the hollow body during its formation, i.e., during the blow molding step, and they are not subsequently sealed and connected to the hollow body. They are sealed and connected to each other during the blow molding operation.

It should be noted that the second part of original claim 5 (now claim 21) does not mean that the press shaping step and the blow molding operation are performed in the same mold cavity. Instead, as shown in Figs. 5 and 6 of the present application, and described in paragraph [0023] of the published application, the blow molding mold is provided outside the mold cavity with the mold portions required for shaping the insert. Nevertheless, the mold cavity with the mating platens for press shaping and the blow mold for forming the hollow body can be operated in one working operation, so that the hollow body (e.g., tank) and the connecting element (insert) can be formed at the same time, albeit in separate cavities.

Accordingly, Ohta does not teach all of the features of claim 19. Therefore, the rejection based on Ohta is inapplicable to claim 19 or any of the claims depending therefrom, and reconsideration and withdrawal of the rejection are respectfully requested.

The Examiner has rejected claims 7-12 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Ohta in view of U.S. Patent 4,919,855 of Thomas. The Examiner acknowledges that Ohta does not show specific characteristics of the claimed laminate, and does not show the use of one or more barrier layers. The Examiner contends that Thomas shows a method of molding a container wherein the laminate has a low level of permeability to hydrocarbons and uses at least one barrier layer, which the Examiner argues to meet dependent claims 7-12. The Examiner concludes that it would have been obvious to one skilled in the art to use Thomas' barrier layer in the process of Ohta, in order to produce an article that functions within desired parameters. The Examiner also contends that Ohta includes a method where the hollow body is a fuel tank, thus meeting claim 14.

This rejection is also respectfully but strenuously traversed for the reasons set forth in detail below.

Even if properly combinable, a combination of Ohta and Thomas would still not lead one skilled in the art to the presently claimed process in which a multi-layer hollow body is blow molded in one step and a multi-layer insert (connecting element) is separately formed by press shaping in a different process step, and subsequently, the press shaped insert is sealed and connected to the blow molded hollow body. Instead, Thomas provides a process for producing a laminated article by co-extrusion in a simple fashion. Ohta seeks to provide a blow molded hollow article having layers which are strongly secured to each other, without separating from each other under normal service conditions and without losing the advantages of the multi-layer molded article. That is, both Thomas and Ohta are concerned with the formation of the blow-molded hollow article itself, not with the attachment of a separately formed connecting element.

An advantage of the process of the presently claimed invention is that by press shaping a multi-layer laminate, an insert (connecting element) is obtained which is non-releasably sealable and connectable to the hollow body. In the case of fuel tank or other container where impermeability is important, this means that the insert is weldable to the material of the tank, such that the barrier layers are arranged to extend in the material in such a way that, upon welding of the insert to the tank, the barrier layers of the insert adjoin as closely as possibly to

the barrier layers which extend in the wall structure of the tank. The impermeability of the tank or container is thereby optimized.

There is no such disclosure or suggestion in either Ohta or Thomas, and therefore no such possibility in the combination of the two references. Therefore, the rejection is inapplicable to the present claims, and reconsideration and withdrawal of the rejection are respectfully requested.

The Examiner has rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Ohta and Thomas, further in view of U.S. Patent 5,855,926 of Yoshida et al. (“Yoshida”). The Examiner acknowledges that Ohta does not show using a specific material for a barrier layer. The Examiner contends that Yoshida shows that it is known to use a barrier layer comprising EVOH, and that Yoshida and Ohta are combinable because they are concerned with methods of molding multi-layer containers. The Examiner concludes that it would have been obvious to one skilled in the art to use Yoshida’s specific barrier layer in the process of Ohta to produce an article that functions within desired parameters.

This rejection is respectfully but strenuously traversed because, even if the references are properly combinable, the combination with Yoshida still fails to make up for the deficiencies in the combination of Ohta and Thomas, discussed in detail above. Therefore, for at least these reasons, the rejection is improper, and reconsideration and withdrawal are respectfully requested.

The Examiner has rejected claims 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Ohta and Thomas, in view of U.S. Patent 5,404,907 of Benjey et al. (“Benjey”). The Examiner acknowledges that Ohta does not show the connecting element in the form of an insert. However, the Examiner contends that Benjey shows a method for molding a fuel tank assembly, wherein the connecting element is in a form of an insert adapted for fitting to the fuel tank in sealed relationship therewith by joining thermoplastic materials, including by welding, particularly hot plate welding of the insert to the fuel tank. The Examiner argues that Ohta and Benjey are combinable because they are concerned with methods of molding containers. The Examiner concludes that it would have been obvious to one skilled in the art to use Benjey’s connector insert with Ohta’s molding process, in order to provide an article whose connector is

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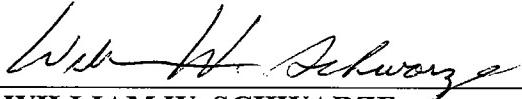
not required to be molded with the container and to ensure that the connector and hollow body will not separate.

This rejection is respectfully but strenuously traversed because, even if the references are properly combinable, Benjey still does not make up for the deficiencies of the combination of Ohta and Thomas, as discussed in detail above. For example, Benjey does not disclose press shaping of a particular thermoplastic laminate, as presently claimed, for forming the insert. Accordingly, at least for these reasons, the rejection is improper, and reconsideration and withdrawal are respectfully requested.

In view of the above amendments and Remarks, it is submitted that all of the claims in the application patentably distinguish over the prior art relied upon by the Examiner.

Reconsideration and an early Notice of Allowance are respectfully requested.

Respectfully submitted,
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WWS/rc
Enclosure – Petition for Extension of Time (three months)